IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

APPLICANT:	Sunil Kumar Chandrupatla et al.		
SERIAL NO.:	09/198,590		
FILING DATE:	November 23, 1998		
TITLE:	AGGREGATION OF USER USAGE DATA FOR ACCOUNTING SYSTEMS IN DYNAMICALLY CONFIGURED NETWORKS		
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APPEAL BRIEF

Dear Sir:

This paper is in support of a Notice to Appeal filed November 21, 2007, of the Office Action dated August 14, 2007, to the Board of Patent Appeals and Interferences.

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Real Party in Interest

Cisco Technology, Inc.

Related Appeals and Interferences

None.

Status of Claims

Claims 14, 17, 19-22, and 24-35 have been cancelled.

Claims 1-13, 15, 16, 18, 23, and 36-49 have been finally rejected and are on appeal.

Status of Amendments

No amendments after final have been filed. All amendments have been entered.

Summary of Claimed Subject Matter

The invention relates to obtaining and correlating network account metering data from two distinct sources: start-stop event accounting records associated with accounting servers and detailed flow data collected from numerous routers throughout a network environment.

Claim 1 is directed to method for accounting for network usage (p. 16, ll. 15-17). The method includes obtaining accounting start-stop event data from two or more accounting servers via an information bus (p. 19, ll. 9-10). The information bus contains the accounting start-stop event data published by the two or more accounting servers (p. 14, ll. 17-19). The method further includes obtaining network flow data independent from said accounting start-stop event data from two or more routers within a network through intermediary netflow collectors (200, p. 19, ll. 9-10), said network flow data including data regarding the number and type of packets utilized by a user (p. 12, l. 12 to p. 13 l. 9). The method further includes correlating said accounting start-stop event data and said network flow data into a subscriber specific call detail record unique to said user by matching said accounting start-stop event data associated with said user with said network flow data associated with said user (210, p. 19, ll. 10-18).

Claim 13 is directed to a method for accounting for network usage (p. 16, ll. 15-17). The method includes parsing accounting start-stop event data from an accounting server on a prescribed time interval (130, p. 16 l. 22 to p. 17 l. 6). The method further includes publishing said accounting start-stop event data on an information bus (140, p. 17 ll. 11-15). The method further includes collecting network flow data independent from said accounting start-stop event data from a network router and forwarding said network flow data to a network flow collector

(150, p. 17 ll. 17-20), said network flow data including data regarding the number and type of packets utilized by a user (p. 12, l. 12 to p. 13 l. 9). The method further includes aggregating said network flow data according to a prescribed aggregation scheme (160, p. 17 l. 20 to p. 18 l. 7). The method further includes parsing said network flow data from said network flow collector (180, p. 18 l. 19 to p. 19 l. 3). The method further includes publishing said network flow data on an information bus (190, p. 19 ll. 3-7). The method further includes collecting said accounting start-stop event data and said network flow data at a target device that subscribes to said accounting start-stop event data and said network flow data along with accounting start-stop event data from a different accounting server and network flow data from a different router (200, p. 19 ll. 9-10). The method further includes correlating said accounting start-stop event data and said network flow data into a subscriber specific call detail record unique to said user by matching said accounting start-stop event data associated with said user with said network flow data associated with said user (210, p. 19 ll. 10-18).

Claim 15 is directed to an apparatus for accounting for network usage (p. 16, ll. 15-17). The apparatus includes a means (target device 114) for obtaining accounting start-stop event data from two or more accounting servers via an information bus (p. 19, ll. 9-10). The information bus contains the accounting start-stop event data published by the two or more accounting servers (p. 14, ll. 17-19). The apparatus further includes a means (target device 114) for obtaining network flow data independent from said accounting start-stop event data from two or more routers within a network through intermediary netflow collectors (p. 19, ll. 9-10). The network flow data includes data regarding the number and type of packets utilized by a user (p. 12, l. 12 to p. 13 l. 9). The apparatus further includes a means (target device 114) for correlating

said accounting start-stop event data and said network flow data into a subscriber specific call detail record unique to said user by matching said accounting start-stop event data associated with said user with said network flow data associated with said user (p. 19, ll. 10-18).

Claim 16 is directed to an apparatus for accounting for network usage (p. 16, ll. 15-17). The apparatus includes a means (accounting adaptor 82, 84, 86) for parsing accounting start-stop event data from an accounting server on a prescribed time interval (130, p. 16 l. 22 to p. 17 l. 6). The apparatus further includes a means (accounting adaptor 82, 84, 86) for publishing said accounting start-stop event data on an information bus (88, 140, p. 17 ll. 11-15). The apparatus further includes a means (network flow collector 96, 98, 100) for collecting network flow data independent from said accounting start-stop event data from a network router and forwarding said network flow data to a network flow collector (150, p. 17 ll. 17-20). The network flow data includes data regarding the number and type of packets utilized by a user (p. 12, l. 12 to p. 13 l. 9). The apparatus further includes a means (network flow collector 96, 98, 100) for aggregating said network flow data according to a prescribed aggregation scheme (160, p. 17 l. 20 to p. 18 l. 7). The apparatus further includes a means (network flow adapter 108, 110, 112) for parsing said network flow data from said network flow collector (180, p. 18 l. 19 to p. 19 l. 3). The apparatus further includes a means (network flow adapter 108, 110, 112) for publishing said network flow data on an information bus (190, p. 19 ll. 3-7). The apparatus further includes a means (subscribing target device 114) for collecting said accounting start-stop event data and said network flow data at a target device that subscribes to said accounting start-stop event data and said network flow data along with accounting start-stop event data from a different accounting server and network flow data from a different router (200, p. 19 ll. 9-10). The apparatus further

includes a means (integrated accounting adapter 116) for correlating said accounting start-stop event data and said network flow data info a subscriber specific call detail record unique to said user by matching said accounting start-stop event data associated with said user with said network flow data associated with said user (210, p. 19 ll. 10-18).

Claim 18 is directed to an apparatus for accounting for network usage (p. 16, ll. 15-17). The apparatus includes an accounting adapter (82, 84, 86, p. 10 l. 23 to p. 11 l. 8) in communication with two or more accounting servers (70, 72, 74, p. 10 l. 23 to p. 11 l. 1). The apparatus further includes a network flow adapter (108, 110, 112, p. 14 ll. 12-21) in communication with two or more routers (90, 92, 94). The apparatus further includes an integrating accounting adapter (116, p. 15 ll. 16-18) in communication with said accounting adapter (82, 84, 86, p. 10 l. 23 to p. 11 l. 8) and said network flow adapter (108, 110, 112, p. 14 ll. 12-21).

Claim 23 is directed to a program storage device readable by a machine tangibly embodying a program of instructions executable by the machine (114, p. 15 ll. 12-23) to perform a method for accounting for network usage. The method includes obtaining accounting start-stop event data from two or more accounting servers via an information bus (p. 19, ll. 9-10). The information bus contains the accounting start-stop event data published by the two or more accounting servers (p. 14, ll. 17-19). The method further includes obtaining network flow data independent from said accounting start-stop event data from two or more routers within a network through intermediary netflow collectors (p. 19, ll. 9-10). The network flow data includes data regarding the number and type of packets utilized by a user (p. 12, l. 12 to p. 13 l.

9). The method further includes correlating said accounting start-stop event data and said network flow data into a subscriber specific call detail record unique to said user by matching said accounting start-stop event data associated with said user with said network flow data associated with said user (p. 19, ll. 10-18).

Grounds of Rejection to be Reviewed on Appeal

Whether Claims 1-13, 15, 16, 18, 23, and 36-49 are unpatentable under 35 U.S.C. 103(b) over U.S. Pat. No. 5,828,737 to Sawyer in view of U.S. Pat. No. 6,338,046 to Saari et al.

Argument

Rejection of Claims 1-13, 15, 16, 18, 23, and 36-49 Under 35 U.S.C. § 103(a)

Independent claims 1, 13, 15, 16, 18, and 23 recite, *inter alia*, obtaining network flow data independent from said accounting start-stop event data from two or more routers within a network through intermediary netflow collectors, said network flow data including data regarding the number and type of packets utilized by a user. These features are not disclosed in either Sawyer or Saari et al., even if, *arguendo,* these references were properly combinable. These features are also not suggested by Sawyer or Saari et al., considered singularly or in combination.

The Examiner contends these features are disclosed by Sawyer. However, Sawyer discloses merely *estimating* the total amount of bandwith used during each communication. The Abstract of Sawyer recites:

> ...measurements of the maximum amount of bandwidth used during predetermined time intervals are made during the course of each communication, with the maximum bandwidth measurements being summed to determine an *estimate* of the total amount of bandwidth used during the communication. The charge for the communication is then determined by multiplying the *estimated* total bandwidth measurement by a charging rate multiplier.[1]

The "Summary of the Invention" of Sawyer states:

> ... periodic instantaneous bandwidth use measurements are made during the course of each communication. The periodically made bandwidth use measurements are summed to determine an *estimate* of the total amount of bandwidth used to carry the communication. A charging rate multiplier is then applied to the determined total bandwidth to obtain the charge incurred for the communication.[2]

Sawyer states further:

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[1] Sawyer, Abstract. (emphasis added)
[2] Sawyer at col. 2 ll. 1-19. (emphasis added)

> The communications system 10 further includes a bandwidth use monitoring device (BUMD) 40 connected to either one or both of the nodes 12 and 14 and operable to make measurements for each communication carried over the communications link 18 of the instantaneous amount of bandwidth being used by the communication. The measurements may be made by the device 40 on either or both the reverse and/or the forward portions of the communications link 18. The results of these measurements are output to a processing device 42 associated with a billing center 44 for the system 10 that sums the bandwidth use measurements to derive an *estimate* of the total bandwidth usage amount for each communication. The bandwidth use monitoring device 40 and processing device 42 accordingly function as a bandwidth meter 46 measuring the total amount of bandwidth used for each communication. The processing device 42 then further functions to multiply the *derived* total bandwidth usage amounts by a charging rate to determine a charging amount to be billed for each communication, with the determined charging amount reported to the billing center 44 for the addition of other charge items and the generation of a bill to the user.[3]

Sawyer states further:

> The cellular telephone system 20 of FIG. 2 includes a similar functionality for determining a charging amount to be billed for each cellular telephone call. The mobile switching center 30 includes or is connected to a bandwidth use monitoring device 40 operable to make measurements, for each call carried over the air interface 26, of the instantaneous amount of bandwidth being used for the call. These measurements may be made by the device 40 on either or both the uplink and/or the downlink portions of the air interface 26. The results of these periodically made, instantaneous measurements are output to a processing device 42 associated with a billing center 44 for the cellular system 20 that sums the bandwidth use measurements to derive an *estimate* of the total bandwidth usage amount for each call. The bandwidth use monitoring device 40 and processing device 42 accordingly function as a bandwidth meter 46 measuring the total amount of bandwidth used for each call. The processing device 42 then further functions to multiply the *derived* total bandwidth usage amounts by a charging rate to determine a charging amount to be billed for each communication, with the determined charging amount reported to the billing center 44 for the addition of other charge items and the generation of a bill to the subscriber.[4]

Thus, Sawyer discloses *estimating* the total amount of bandwith used during each communication by summing the results of periodic instantaneous bandwidth use measurements.

[3] Sawyer at col. 4 l. 51 to col. 5 l. 5. (emphasis added)
[4] Sawyer at col. 5 ll. 6-28. (emphasis added)

As such, the network flow data in Sawyer does not include data regarding the number and type of packets *utilized* by a user as required by Claims 1, 13, 15, 16, 18, and 23.

Accordingly, a *prima facie* case of obviousness has not been established, and the rejection of claims 1, 13, 15, 16, 18, and 23, and the claims dependent therefrom, based on the combination of Sawyer or Saari et al., is improper.

Additionally, Sawyer teaches away from Claims 1, 13, 15, 16, 18, and 23. Again, independent claims 1, 13, 15, 16, 18, and 23 require that the network flow data include data regarding the number and type of packets utilized by a user. Whereas Sawyer teaches away from including in network flow data the number of packets used by a user, referring to such methods as "not particularly accurate." Sawyer recites:

> One solution to this charging concern is to charge the user based on the amount of packets of information in all of the packet transmissions 36 transmitted over the course of the communication. The use of packet amounts as the primary factor in determining the charge to be billed is also not particularly accurate in bandwidth-on-demand type communications systems because a user would be charged the same amount for a ten kilobyte packet transmission regardless of the length of the communication. This charging scheme accordingly does not take into account the minimum level (Min) of bandwidth used in maintaining the communication over the communications link 18 or the air interface 26 in between instances of successive packet transmissions 36. Even though minimal in nature, use of that minimum amount of bandwidth affects the capability (i.e., capacity) of the system to simultaneously handle other communications and thus should be reflected in the charge billed to the user for making the communication or call.[5]

For this additional reason, a *prima facie* case of obviousness has not been established, and the rejection of claims 1, 13, 15, 16, 18, and 23, and the claims dependent therefrom, based on the combination of Sawyer or Saari et al., is improper.

[5] Sawyer at col. 4 ll. 33-50. (emphasis added)

Independent claims 1, 13, 15, 16, 18, and 23 also recite, *inter alia*, correlating said accounting start-stop event data and said network flow data into a subscriber specific call detail record unique to said user by matching said accounting start-stop event data associated with said user with said network flow data associated with said user. These features are not disclosed in either Sawyer or Saari et al., even if, *arguendo,* these references were properly combinable. These features are also not suggested by Sawyer or Saari et al., considered singularly or in combination. As mentioned above, Sawyer in view of Saari et al. does not disclose or suggest said network flow data including data regarding the number and type of packets utilized by a user as required by Claims 1, 13, 15, 16, 18, and 23. Therefore, Sawyer in view of Saari cannot be said to disclose or suggest matching accounting stop-start event data associated with said user with such network flow data associated with said user. For this additional reason, a *prima facie* case of obviousness has not been established, and the rejection of claims 1, 13, 15, 16, 18, and 23, and the claims dependent therefrom, based on the combination of Sawyer or Saari et al., is improper.

Claims Appendix

1. A method for accounting for network usage comprising:

obtaining accounting start-stop event data from two or more accounting servers via an information bus, wherein the information bus contains the accounting start-stop event data published by the two or more accounting servers;

obtaining network flow data independent from said accounting start-stop event data from two or more routers within a network through intermediary netflow collectors, said network flow data including data regarding the number and type of packets utilized by a user; and

correlating said accounting start-stop event data and said network flow data into a subscriber specific call detail record unique to said user by matching said accounting start-stop event data associated with said user with said network flow data associated with said user.

2. The method of claim 1 wherein said obtaining accounting start-stop event data further comprises:

parsing said accounting start-stop event data from the two or more accounting servers on a prescribed time interval; and

publishing said accounting start-stop event data on an information bus.

3. The method of claim 1 wherein said obtaining accounting start-stop event data further comprises:

collecting said accounting start-stop event data at a target device that subscribes to said accounting start-stop event data.

4. The method of claim 2 wherein said obtaining accounting start-stop event data further comprises:

collecting said accounting start-stop event data at a target device that subscribes to said accounting start-stop event data.

5. The method of claim 1 wherein said obtaining network flow data further comprises:

aggregating said network flow data at said intermediary netflow flow collector according to a service provider defined aggregation scheme.

6. The method of claim 5 wherein aggregating said network flow data further comprises:

basing aggregation of said network flow data on a specified time period.

7. The method of claim 5 wherein aggregating said network flow data further comprises:

basing aggregation of said network flow data on the Internet Protocol Layer 3 source address.

8. The method of claim 5 wherein aggregating said network flow data further comprises:

basing aggregation of said network flow data on the Internet Protocol Layer 4 destination address.

9. The method of claim 1 wherein said obtaining network flow data further comprises:

filtering said network flow data at the intermediary netflow collector according to a service provider defined filtration scheme.

10. The method of claim 1 wherein said obtaining network flow data further comprises:

collecting said network flow data from the two or more routers and forwarding said network flow data to the intermediary netflow collectors;

aggregating said network flow data according to a defined aggregation scheme;

parsing said network flow data from said network flow collector;

publishing said network flow data on an information bus.

11. The method of claim 10 wherein said obtaining network flow data further comprises:

filtering said network flow data according to a service provider defined filtration scheme.

12. The method of claim 1 wherein said correlating said accounting start-stop event data and said network flow data further comprises:

reforming said call detail record to meet post-correlated applications.

13. A method for accounting for network usage comprising:

parsing accounting start-stop event data from an accounting server on a prescribed time interval;

publishing said accounting start-stop event data on an information bus;

collecting network flow data independent from said accounting start-stop event data from a network router and forwarding said network flow data to a network flow collector, said network flow data including data regarding the number and type of packets utilized by a user;

aggregating said network flow data according to a prescribed aggregation scheme;

parsing said network flow data from said network flow collector;

publishing said network flow data on an information bus;

collecting said accounting start-stop event data and said network flow data at a target device that subscribes to said accounting start-stop event data and said network flow data along with accounting start-stop event data from a different accounting server and network flow data from a different router; and

correlating said accounting start-stop event data and said network flow data into a subscriber specific call detail record unique to said user by matching said accounting start-stop event data associated with said user with said network flow data associated with said user.

14. (Cancelled).

15. An apparatus for accounting for network usage comprising:

a means for obtaining accounting start-stop event data from two or more accounting servers via an information bus, wherein the information bus contains the accounting start-stop event data published by the two ore more accounting servers;

a means for obtaining network flow data independent from said accounting start-stop event data from two or more routers within a network through intermediary netflow collectors, said network flow data including data regarding the number and type of packets utilized by a user; and

a means for correlating said accounting start-stop event data and said network flow data into a subscriber specific call detail record unique to said user by matching said accounting start-stop event data associated with said user with said network flow data associated with said user.

16. An apparatus for accounting for network usage comprising:

means for parsing accounting start-stop event data from an accounting server on a prescribed time interval;

means for publishing said accounting start-stop event data on an information bus;

means for collecting network flow data independent from said accounting start-stop event data from a network router and forwarding said network flow data to a network flow collector, said network flow data including data regarding the number and type of packets utilized by a user;

means for aggregating said network flow data according to a prescribed aggregation scheme;

means for parsing said network flow data from said network flow collector;

means for publishing said network flow data on an information bus;

means for collecting said accounting start-stop event data and said network flow data at a target device that subscribes to said accounting start-stop event data and said network

flow data along with accounting start-stop event data from a different accounting server and network flow data from a different router; and

means for correlating said accounting start-stop event data and said network flow data info a subscriber specific call detail record unique to said user by matching said accounting start-stop event data associated with said user with said network flow data associated with said user.

17. (Cancelled).

18. An apparatus for accounting for network usage comprising:

an accounting adapter in communication with two or more accounting servers;

a network flow adapter in communication with two or more routers; and

an integrating accounting adapter in communication with said accounting adapter and said network flow adapter.

19-22. (Cancelled).

23. A program storage device readable by a machine tangibly embodying a program of instructions executable by the machine to perform a method for accounting for network usage, said method comprising:

obtaining accounting start-stop event data from two or more accounting servers via an information bus, wherein the information bus contains the accounting start-stop event data published by the two or more accounting servers;

obtaining network flow data independent from said accounting start-stop event data from two or more routers within a network through intermediary netflow collectors, said network flow data including data regarding the number and type of packets utilized by a user; and

correlating said accounting start-stop event data and said network flow data into a subscriber specific call detail record unique to said user by matching said accounting start-stop event data associated with said user with said network flow data associated with said user.

24-35. (Cancelled).

36. The apparatus of claim 15, wherein said means for obtaining accounting start-stop event data further comprises:

means for parsing said accounting start-stop event data from the two or more accounting servers on a prescribed time interval; and

means for publishing said accounting start-stop event data on an information bus.

37. The apparatus of claim 15 wherein said means for obtaining accounting start-stop event data further comprises:

means for collecting said accounting start-stop event data at a target device that subscribes to said accounting start-stop event data.

38. The apparatus of claim 37 wherein said means for obtaining accounting start-stop event data further comprises:

means for collecting said accounting start-stop event data at a target device that subscribes to said accounting start-stop event data.

39. The apparatus of claim 15 wherein said means for obtaining network flow data further comprises:

means for aggregating said network flow data at said intermediary netflow flow collector according to a service provider defined aggregation scheme.

40. The apparatus of claim 39 wherein said means for aggregating said network flow data further comprises:

means for basing aggregation of said network flow data on a specified time period.

41. The apparatus of claim 39 wherein said means for aggregating said network flow data further comprises:

means for basing aggregation of said network flow data on the Internet Protocol Layer 3 source address.

42. The apparatus of claim 39 wherein said means for aggregating said network flow data further comprises:

means for basing aggregation of said network flow data on the Internet Protocol Layer 4 destination address.

43. The apparatus of claim 15, wherein said means for obtaining network flow data further comprises:

means for filtering said network flow data at the intermediary netflow collector according to a service provider defined filtration scheme.

44. The apparatus of claim 15 wherein said means for obtaining network flow data further comprises:

means for collecting said network flow data from the two or more routers and forwarding said network flow data to the intermediary netflow collectors;

aggregating said network flow data according to a defined aggregation scheme;

parsing said network flow data from said network flow collector;

publishing said network flow data on an information bus.

45. The apparatus of claim 15 wherein said means for obtaining network flow data further comprises:

means for filtering said network flow data according to a service provider defined filtration scheme.

46. The apparatus of claim 15 wherein said means for correlating said accounting start-stop event data and said network flow data further comprises:

means for reforming said call detail record to meet post-correlated applications.

47. The apparatus of claim 18, wherein said accounting adapter is configured to obtain accounting start-stop event data from two or more accounting servers via an information bus, wherein the information bus contains the accounting start-stop event data published by the two or more accounting servers.

48. The apparatus of claim 47, wherein said network flow adapter is configured to obtain network flow data independent from the accounting start-stop event data from two or more routers within a network through intermediary netflow collectors, the network flow data including data regarding the number and type of packets utilized by a user.

49. The apparatus of claim 48, wherein said integrating accounting adapter is configured to correlate the accounting start-stop event data and the network flow data into a subscriber specific call detail record unique to the user by matching the accounting start-stop event data associated with the user with the network flow data associated with the user.

Evidence Appendix

None.

Related Proceedings Appendix

None.

Please charge any additional required fee or credit any overpayment not otherwise paid or credited to our deposit account No. 50-1698.

Respectfully submitted,

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